

TC 2600

KNOX

Organization: Bldg./Room

U.S. DEPARTMENT OF COMMERCE

COMMISSIONER FOR PATENTS

P.O. BOX 1450

ALEXANDRIA, VA 22313-1450

IF UNDELIVERABLE RETURN IN TEN DAYS

OFFICIAL BUSINESS

AN EQUAL OPPORTUNITY EMPLOYER

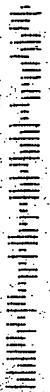
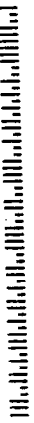


0211A  
\$0.00  
0004204479  
OCT  
MAILED FROM ZIP CODE



ADAM050\* 100043083 1705 18 10/26/06  
FORWARD TIME EXP RTN TO SEND  
ADAMS & WILKS  
17 BATTERY PL RM 1231  
NEW YORK NY 10004-1162

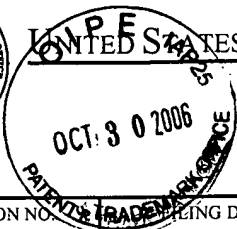
RETURN TO SENDER



BEST AVAILABLE COPY



UNITED STATES PATENT AND TRADEMARK OFFICE



UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

09/582,903

08/11/2000

KENJI KATO

S004-4034PCT

3167

7590

10/23/2006

BRUCE L ADAMS  
ADAMS & WILKS  
50 BROADWAY  
31ST FLOOR  
NEW YORK, NY 10004

EXAMINER

DINH, TAN X

ART UNIT

PAPER NUMBER

2627

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



Art Unit: 2627

1) The amendment filed 8/14/2006 is acknowledged. Claims 10,15-100,102 and 105-119 have been canceled. New claims 120-130 are added.

2) The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

3) b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4) Claims 127 and 128 are rejected under 35 U.S.C. 102(b) as being anticipated by BREZOCZKY et al ( EPA 0-549-236 A2 ).

BREZOCZKY et al discloses a near-field optical head as claimed in claim 127, comprising:

a planar substrate having a first surface, a second surface disposed opposite to the first surface and an inverted conical or pyramidal hole extending through the first and second surfaces and having at least one fine aperture formed at an apex thereof and disposed in the first surface ( Fig.3, first surface 41, second surface 31, inverted conical with fine aperture 37; see also figures 5 and 7 for different lay out of the optical head );

an optical waveguide disposed for propagating light along optical path, the optical waveguide being formed on the second surface of the planar substrate so that the optical waveguide and

Art Unit: 2627

the planar substrate form an integral structure ( figure 5, slider 51, aperture 76 for guiding laser beam 46, etc., are formed as an integral structure ); and

a light reflection film disposed in the optical waveguide for reflecting in the direction of the fine aperture light propagated through the optical waveguide ( Fig.5, mirror 61 ).

As to claim 28, BREZOCZKY et al shows the near-filed optical head is an air floating-type optical head ( the air floating between optical head and the recording medium ).

5) The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6) This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later

Art Unit: 2627

invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7) Claims 2-14, 101, 103 and 104 are rejected under 35 U.S.C. 103(a) as being unpatentable over BREZOCZKY et al ( EPA 0-549-236 A2 ).

BREZOCZKY et al discloses all the subject matter as claimed in claim 2, except to specifically show that the waveguide extends into the inverted conical or pyramidal hole. It would have been obvious to someone within the level of skill in the art at the time of the invention was made to extend the waveguide into inverted conical of BREZOCZKY et al as claimed. The rationale is as follows:

The waveguide for guiding the light beam, such as, optical fiber, could be made in any desirable sizes, shapes, angles, etc., and formed at any suitable locations on the optical head. Thus, to make a waveguide extends into the inverted conical or pyramidal hole of BREZOCZKY et al's optical head as claimed is deem obvious to someone within the level of skill in the art.

As to claims 3 and 4, the feature of using different degree of slant surfaces in inverted conical of near-field optical head is old and widely used in the optical recording art ( See ITO et al, US 6,304,527, figures 6B and 6C ).

As to claims 5-7, since the inverted conical with different degree of slant surfaces is old and widely used as indicated above, one with ordinary skill in the art at the time of the invention was made would have been motivated to make an inverted conical with slant surfaces at any desirable angles ( greater than 50 degrees or less than 50 degrees ) or curved as claimed.

As to claim 8, BREZOCZKY et al shows the mirror focuses light to fine aperture ( Fig.5, mirror 61 ).

As to claim 9, the core and clad are inherent in every optical wave guide.

BREZOCZKY et al discloses all the subject matter as claimed in claims 11-14, 101, 103 and 104, such as a planar substrate having a first surface, a second surface disposed opposite to the first surface and an inverted conical or pyramidal hole extending through the first and second surfaces and having at least one fine aperture formed at an apex thereof and disposed in the first surface ( Fig.3, first surface 41, second surface 31, inverted conical with fine aperture 37; see also figures 5 and 7 for different lay out of the optical head ), an optical waveguide disposed for propagating light along optical path, the optical waveguide being formed on the second surface of the planar substrate so that the optical waveguide and the planar substrate form an integral structure (

Art Unit: 2627

figure 5, slider 51, aperture 76 for guiding laser beam 46, etc., are formed as an integral structure ), and a light reflection film disposed in the optical waveguide for reflecting in the direction of the fine aperture light propagated through the optical waveguide ( Fig.5, mirror 61 ), *except that the optical waveguide is coupled or connected to planar substrate rather than formed or bonded on the surface of the planar substrate*. It would have been obvious to someone within the level of skill in the art at the time of the invention was made to us the step of formed or bonded on BREZOCZKY et al's near-field optical head for coupling or connecting between optical waveguide and substrate as claimed. The rationale is as follows:

BREZOCZKY et al teaches a near-field optical head including every necessary elements and a detail connecting between them, in another words, BREZOCZKY et al draws a detail "blue print" to build a near-field optical head. Further, the steps of bonding or forming are old and widely used in art during manufacturing optical head for connecting or coupling between elements. Therefore, one of ordinary skill in the art at the time of the invention was made would have been motivated to use the steps of bonding or forming for connecting or coupling between elements in near-filed optical head as claimed.



Art Unit: 2627

As to claim 129, the feature of bonding optical waveguide to surface of substrate are old and widely used in the manufacturing near-field optical head ( see the rejection of claims 11-14,101,103 and 104 above ).

BREZOCZKY et al discloses all the subject matter as claimed in claim 130, except to specifically show that the waveguide extends into the inverted conical or pyramidal hole. It would have been obvious to someone within the level of skill in the art at the time of the invention was made to extend the waveguide into inverted conical of BREZOCZKY et al as claimed. The rationale is as follows: The waveguide for guiding the light beam, such as, optical fiber, could be made in any desirable sizes, shapes, angles, etc., and formed at any suitable locations on the optical head. Thus, to make a waveguide extends into the inverted conical or pyramidal hole of BREZOCZKY et al's optical head as claimed is deem obvious to someone within the level of skill in the art.

8) Claims 1-9,13,120-122 and 125 are allowed.

9) Claims 123-126 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10) Applicant's arguments with respect to claims 1-130 have been considered but are moot in view of the new ground(s) of rejection.

11) The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant is reminded that in amending in response to a rejection of claims ( if the rejection involves with any applicable arts ), the patentable novelty must be clearly shown in view of the state of the art disclosed by the references cited and the objection made. Applicant must also show how the amendments avoid such references and objections. See 37 CFR § 1.111(c).

Form PTO-892 is attached herein.

12) Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAN XUAN DINH whose telephone number is (571)272-7586. The examiner can normally be reached on MONDAY to FRIDAY from 9:00AM to 5:00PM.

The FAX phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

Art Unit: 2627

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at (866)217-9197 (toll-free).



**TAN DINH**  
**PRIMARY EXAMINER**

October 19, 2006

|                                   |                                       |   |             |
|-----------------------------------|---------------------------------------|---|-------------|
| <b>Notice of References Cited</b> | Application/Control No.<br>09/582,903 | Applicant(s)/Patent Under<br>Reexamination<br>KATO ET AL. |             |
|                                   | Examiner<br>TAN X. DINH               | Art Unit<br>2627  | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Name             | Classification |
|---|---|--|-----------------|------------------|----------------|
| * | A | US-6,631,227 b2                                  | 10-2003         | Kasama et al.    | 369/112.01     |
| * | B | US-7,054,255 b2                                  | 05-2006         | Kasama et al.    | 369/112.27     |
| * | C | US-5,351,229 a                                   | 09-1994         | Brezoczky et al. | 369/300        |
| * | D | US-6,473,384 b1                                  | 10-2002         | Oumi et al.      | 369/112.01     |
| * | E | US-6,567,373 b1                                  | 05-2003         | Kato et al.      | 369/112.01     |
|   | F | US-  |                 |                  |                |
|   | G | US-  |                 |                  |                |
|   | H | US-  |                 |                  |                |
|   | I | US-  |                 |                  |                |
|   | J | US-  |                 |                  |                |
|   | K | US-  |                 |                  |                |
|   | L | US-  |                 |                  |                |
|   | M | US-  |                 |                  |                |

**FOREIGN PATENT DOCUMENTS**

| * |   | Document Number<br>Country Code-Number-Kind Code | Date<br>MM-YYYY | Country | Name | Classification |
|---|---|--|-----------------|---------|------|----------------|
|   | N |  |                 |         |      |                |
|   | O |  |                 |         |      |                |
|   | P |  |                 |         |      |                |
|   | Q |  |                 |         |      |                |
|   | R |  |                 |         |      |                |
|   | S |  |                 |         |      |                |
|   | T |  |                 |         |      |                |

**NON-PATENT DOCUMENTS**

| * |   | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|---|
|   | U |   |
|   | V |   |
|   | W |   |
|   | X |   |

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.